

The Examiner objected to the present specification because this application fails to fully comply with the requirements of 37 CFR 1.821 through 1.825. Submitted herewith is a Sequence Listing in compliance with the rules.

Claims 8-22 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Reconsideration and withdrawal of this rejection are respectfully requested.

Regarding point (a), the claims have been amended to delete the reference to the non-elected SEQ ID NOs. Regarding point (b), applicants do not acquiesce to this ground of rejection but in order to advance the prosecution, have amended the claims to delete reference to allelic variations. Regarding point (c), the claims as amended do not recite "coding region" language. Regarding points (d) – (k), the claims as amended do not recite the allegedly vague terms. Applicants submit that in view of the claim amendments, the rejection under 35 U.S.C. § 112, second paragraph, can be withdrawn.

Claims 8-22 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. According to the Examiner, the application does not disclose how to use SEQ ID NO:74 or a fragment thereof. This rejection relates to the rejection under 35 U.S.C. § 101 lack of utility, and so these grounds of rejection are addressed together.

The application discloses for the first time that SEQ ID NO:74 is associated with neural plasticity in mammals. SEQ ID NO:74 shares significant homology with a human gene associated with Norrie Disease, which is an X-linked recessive disease, characterized by mental retardation and also by congenital partial or total blindness. Diagnosis of Norrie Disease is based on both clinical findings and mutation analysis of the ND gene. (Berger, W. et al., Molecular Dissection of Norrie Disease, *Acta Anat.* (Basel) 162:95-100 (1998). The Norrie Disease gene was described by Chen, Z.Y. et al., Isolation and Characterization of a Candidate Gene for Norrie Disease, *Nat. Genet.* 1:204-208 (1992). Thus, the Norrie gene falls under the category of well-established utility for the purposes of fulfilling the utility requirements. Exhibit 1, attached hereto, is an alignment of SEQ ID NO:74 with human Norrie Disease gene sequences.

Applicants have added to the knowledge about the Norrie gene by disclosing for the first time that (a) a homolog of the Norrie gene is present in cats, and (b) this Norrie gene-related sequence is differentially expressed, along with other genes, in an animal model designed for the discovery of genes related to the plasticity of the brain. The Norrie-related sequence, represented by SEQ ID NO:74, was discovered by applicants using subtractive hybridization, as described in detail in Example IX at pages 46-49 of the specification. SEQ ID NO:74 was among a group of sequences expressed at a greater level in 30-day-old kitten visual cortex mRNA than in adult visual cortex mRNA. Because mutations in the Norrie gene are related to X-linked disease resulting in mental retardation and blindness, the discovery that SEQ ID NO:74 is expressed in the visual cortex in an age-related manner is significant.

Applicants respectfully submit that the present claims meet the current Guidelines for the Utility Requirement. First, a person of ordinary skill in the art would immediately appreciate why the invention is useful, based on the characteristics of the invention. The characteristics of the invention include a polynucleotide sequence differentially expressed in cat visual cortex, in a manner related to age-related function of the visual cortex, and the location of the expression correlates with an important genetic disease in humans (mental retardation). The utility is specific (it relates to the particular sequence of SEQ ID NO:74, which shares homology with the Norrie gene that is not shared by other sequences); substantial (it relates to a differentially expressed gene that is likely to play a role in age-related changes in the function of the mammalian visual cortex); and credible (the sequence shares homology with the human Norrie gene, as determined by well-known alignment procedures, and the Norrie gene itself has been identified in numerous publications in respected scientific and medical literature as playing a major role in contributing to mental retardation and blindness in humans).

In view of this utility, one of skill would know how to use the invention, and the requirements of 35 U.S.C. § 112, first paragraph, therefore are met. For these reason, reconsideration and withdrawal of these rejections are respectfully requested.

Claims 8-22 stand rejected under 35 U.S.C. 102(b) as allegedly anticipated by Chen et al. *Nature Genetics* 1(3): 204 (1992). Without acquiescing to the ground of rejection, applicants submit herewith a set of amended claims that applicants believe are not anticipated by this publication.


Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version With Markings to Show Changes Made.**"

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.



Respectfully submitted,

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Enclosure:

Exhibit 1: Blast Report



VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Paragraph before Technical Field at page 1, line 5 has been added:

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. Patent Application No. 08/224,621 filed April 5, 1994, now pending, which application is incorporated herein by reference in its entirety.

In the Claims:

Claims 8-22 have been cancelled.

Claims 57-62 have been added.

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